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Application No. 10/811,249
Attorney Docket No: 25307A

OCT 17 2006

Remarks

Claim 1 has been amended to incorporate the recitation of claim 3. The features of claim 3 are found at least in paragraph [0022]. Claims 2 – 4 and 15 have been canceled without prejudice. Claim 11 has been amended to incorporate the recitation of claim 12 which states that the binder is a sugar. The features recited in claim 12 are found at least in paragraphs [0013] – [0015], [0018], [0024], and [0026]. Because Claim 1 and claim 11 have each been amended to incorporate an existing, original claim, there is no question of new matter and entry of the amendments is respectfully requested.

Applicant understands that Applicant cannot, as a matter of right, amend any finally rejected claim, add new claims, or reinstate previously canceled claims after a final Examiner Action. However, according to MPEP §714.13, amendments that cancel claims, adopt Examiner suggestions, remove issues for appeal, or in some other way require only a cursory review by the Examiner may be considered. In this regard, Applicant submits that claim 1 has been amended to include the recitation of claim 3 and that claim 11 has been amended to include a portion of claim 12. Applicant also submits that claims 3 and 12 were previously examined by the Examiner. As a result, Applicant submits that a prior art search for amended claims 1 and 11 has already been conducted. Therefore, it is respectfully submitted that only a cursory review of the cited references is necessary by the Examiner to determine the patentability of newly amended claims 1 and 11. Accordingly, Applicant respectfully requests that claims 1, 5 – 14, and 16 should be re-considered and passed to allowance. In addition, Applicant respectfully submits that the claims are in compliance with the current amendment indicators of underlining added material and striking through deleted material.

Claims 1, 5 – 14, and 16 are before the Examiner for consideration.

Rejection under 35 U.S.C. §103(a)

The Examiner has rejected claims 1 – 10 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2001/0011780 to Knutsson (“Knutsson”) in view of U.S. Patent No. 5,317,037 to Golden *et al.* (“Golden”). In particular, the Examiner admits that Knutsson does not teach using sugar as the binder material. In this regard, Golden is cited as allegedly teaching the use of sugar as a glass binder for a forming a glass fiber composite. The Examiner concludes that it would have been obvious to one of ordinary skill in the art to use sugar as the binder in the method of Knutsson in order to produce a biodegradable material.

Initially, Applicant submits that claims 2 – 4 have been canceled without prejudice, thereby rendering the rejection of these claims moot.

Additionally, Applicant respectfully directs the Examiner’s attention to the amendments made to independent claim 1 and submits that claim 1, as amended, defines a method of forming a preform for a muffler that is not taught or suggested within Knutsson and Golden, either alone or in

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combination. Knutsson teaches preforms formed of continuous glass fiber strands that are used as sound deadening materials in engine exhaust mufflers. (*See, e.g.*, Abstract). The process used to form a preform includes feeding continuous glass fiber strands into a cavity that is made of perforated shells that have the shape of the muffler to be filled. (*See, e.g.*, paragraphs [0005] and [0018]). Air blown through a nozzle in the perforated preform shell blows apart and entangles the glass strands to form a wool-like product. (*See, e.g.*, paragraphs [0005] and [0018]). A powder binder is added with the continuous glass fibers through the nozzle. (*See, e.g.*, paragraphs [0005] and [0018] and claims 1 and 2). The binder is any thermoplastic or thermoset resin that can be produced or reduced into a powder. (*See, e.g.*, paragraph [0014] and claim 6). After the binder and glass fibers have been inserted into the perforated shell, hot air is blown through the perforated shell to melt the binder and bond the glass fibers together. (*See, e.g.*, paragraphs [0005] and [0019] and claims 1 and 9). Cool or ambient air is then passed through the perforated shell to cool the preform and set the binder so that the preform can be removed and used. (*See, e.g.*, paragraphs [0005] and [0019] and claims 1 and 10.).

Golden discloses a melt-moldable composition that disintegrates in the presence of moisture and decomposes or degrades to produce components that are inert or beneficial to the ground. (*See, e.g.*, column 2, lines 24 – 27 and 48 – 52). The composition can be shaped into useful articles that have a mechanical strength that is sufficient for its intended use (*e.g.*, golf tees, golf pencils, and clay pigeons), but which allows the article to disintegrate and decompose after it is broken. (*See, e.g.*, column 2, lines 28 – 32 and column 3, lines 11 – 21). The composition includes a binder that is preferably a natural substance such as sugar. (*See, e.g.*, column 2, lines 56 – 60). Water or synthetic polymers may be used together with the natural binders and chemical additives may be added to accelerate the decomposition of the article. (*See, e.g.*, column 2, lines 60 – 68 and column 3, lines 31 – 38). The composition further includes biodegradable reinforcing fibers, preferably cellulosic fibers from wood pulp, cotton, linen, viscose rayon, and sisal materials. (*See, e.g.*, column 3, lines 39 – 42). Inorganic fibers such as wollastonite and glass fibers may also be employed in the composition. (*See, e.g.*, column 2, line 55 and column 3, lines 44 – 45).

Applicant respectfully submits that neither Knutsson nor Golden teach or suggest a method of forming a muffler preform where continuous glass strands are texturized by separating the continuous glass strands into individual glass fibers prior to feeding the glass fibers into a preform mold to form a muffler preform. Applicant submits that, unlike the method claimed in amended claim 1, Knutsson specifically teaches that the glass strands are blown apart and entangled in a cavity formed of perforated shells having the shape of the muffler to be filled. (*See, e.g.*, paragraphs [0005] and [0018]). As recited in amended claim 1, the continuous glass strands are texturized into glass fibers prior to feeding the glass fibers into a preform mold. Thus, the glass strands of the presently claimed invention are not texturized in the preform mold (*i.e.*, cavity) as taught by Knutsson. With respect to

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Golden, Applicant submits that Golden merely teaches a moldable composition that includes mixing reinforcement fibers and binders. Golden is silent regarding any teaching or suggestion of texturizing glass strands into individual glass fibers as claimed. In fact, there is no disclosure of any kind within Golden of texturizing glass strands.

Additionally, Applicant respectfully submits that to evaluate the obviousness or non-obviousness of an invention, both the prior art reference(s) and the claimed invention as a whole must be considered. (See, e.g., *Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 3, August 2005, §2141.02 citing *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983) and *Schenck v. Nortron Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983)). Although Golden teaches that natural substances such as sugar, polydextrose, maltose, and gelatin may be used as a binder, Golden as a whole teaches the use of the fibers and binder to form a biodegradable product. (See, e.g., column 2, lines 56 – 60). Moreover, the Abstract of Golden clearly states that the fibrous material may be cellulose and/or mineral fibers which provide the attributes of reinforcement and degradability. If the muffler preform of claim 1 were to disintegrate or biodegrade, as is taught by Golden, the sound deadening properties of the muffler would be lost and the invention would be rendered useless for its intended purpose. Thus, it is submitted that one of ordinary skill in the art would simply not glean from the teachings of Golden to apply a sugar binder to a preform mold and form a muffler preform as recited in amended claim 1.

In addition, Applicant submits that the cited prior art references teach away from the invention claimed in amended independent claim 1. For example, Knutsson teaches blowing apart and entangling glass strands in a perforated cavity that has the shape of the muffler to be filled. (See, e.g., paragraphs [0005] and [0018]). This is the opposite of the method of claim 1 in which the continuous glass strands are texturized into individual glass fibers prior to feeding the glass fibers into a preform mold. Thus, Applicant submits that one of ordinary skill in the art would be led away from texturizing the glass strands (e.g., blowing the glass strands apart) prior to feeding the glass fibers into the preform mold based on the teachings of Knutsson. In addition, it is respectfully submitted that one of ordinary skill in the art would not arrive at the method claimed in claim 1 based on the teachings of Golden because Golden is silent with respect to texturizing glass strands. Additionally, in view of the above, Applicant respectfully submits that the combination of the teachings of Knutsson and Golden would not result in the inventive method of claim 1.

Further, Applicant submits that there is no motivation for one of skill in the art to arrive at the presently claimed invention based on the disclosures of Knutsson and Golden. To establish a *prima facie* case of obviousness, there must be some motivation, either within the reference or in the knowledge of those of skill in the art, to modify the reference or combine the references' teachings, there must be a reasonable expectation of success, and the prior art references must meet all of the

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claim limitations. (See, e.g., *Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 3, August 2005, §2142). One of ordinary skill in the art would not be motivated to arrive at the presently claimed process for forming a muffler that includes texturizing continuous glass strands by separating the continuous glass strands into individual glass fibers prior to feeding the glass fibers into a preform mold that has a predetermined shape of a muffler, feeding sugar and the glass fibers into the preform mold, heating the preform mold to a temperature sufficient to melt the sugar and adhere to the glass fibers, and cooling the preform mold to bind the sugar-coated glass fibers and form a preform. As discussed above, neither Knutsson nor Golden teach or suggest texturizing continuous glass strands into individual glass fibers prior to feeding the glass fibers into a preform mold. Without some teaching or suggestion, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.

In view of the above, Applicant respectfully submits that amended claim 1 is patentably distinguishable over Knutsson and Golden, either alone or in combination. Because claims 5 – 10 are dependent upon independent claim 1, which, as discussed above, is not taught within the Examiner's cited references, either alone or in combination, claims 5 – 10 are submitted to be non-obvious and patentable.

Thus, Applicant respectfully submits that claims 1 and 5 – 10 are not obvious over Knutsson in view of Golden and respectfully requests reconsideration and withdrawal of this rejection.

Rejection under 35 U.S.C. §103(a)

The Examiner has rejected claim 11 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2001/0011780 to Knutsson ("Knutsson") in view of U.S. Patent No. 3,286,004 to Hill *et al.* ("Hill"). The Examiner asserts that Knutsson teaches the method of the present invention with the exception of coating the surface of a mold with a binder. In this regard, Hill is cited as teaching the coating of a mold cavity with a thermosetting resin binder and then spraying reinforcing fibers on top of the binding resin layer. The Examiner concludes that it would have been obvious to one of skill in the art to modify the method of Knutsson to include the step of applying a curing binder prior to applying the glass fibers. The Examiner asserts that one of skill in the art would have been motivated to do so in order to provide a fluffy, low density mat containing sufficient resin to act as a binder.

In response to this rejection, Applicant respectfully directs the Examiner's attention to the amendments made to independent claim 11, and submits that claim 11 defines a method of forming a preform that is not taught or suggested within Knutsson and Hill, either alone or in combination. With respect to Knutsson, Applicant submits that the method of making the preform taught by Knutsson is discussed in detail above, and for purposes of brevity, will not be discussed in detail with

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respect to this rejection. Hill teaches a method of making plastic articles that include a fiber-reinforced plastic shell and a resin foam core. (*See, e.g.*, column 1, lines 10 – 12). First, a coating composition containing a polyester resin, a suitable catalyst, and a pigment is sprayed onto the mold surface. (*See, e.g.*, column 3, lines 38 – 41). The mold is heated to cure or partially cure the first coating composition. (*See, e.g.*, column 4, lines 67 – 70). After this first coating layer has at least partially cured, a second spray-on layer formed of reinforcement fibers and binder is applied to the first coating layer. (*See, e.g.*, column 3, lines 43 – 47). The binder is preferably a polyester resin for compatibility and adhesion to the initially applied coating layer. (*See, e.g.*, column 3, lines 43 – 47). A pressure transfer film is applied to the layer of fibers and binder by spraying a webbing lacquer onto the second layer. (*See, e.g.*, column 3, lines 58 – 61). As soon as the pressure transfer film is applied, the two mold sections are brought together and a foamable resin mixture is introduced into the closed mold. (*See, e.g.*, column 4, lines 17 – 21). An exothermic reaction of the resin mixture causes the resin mass to expand and fill the mold. (*See, e.g.*, column 4, lines 37 – 39).

Applicant submits that neither Knutsson nor Hill teach or suggest a method of forming a preform that includes placing sugar on internal walls of a preform mold prior to the addition of continuous glass strands, texturizing the continuous glass strands by separating the continuous glass strands into individual glass fibers prior to adding the texturized glass strands to the preform mold, adding the texturized glass strands to the preform mold, and curing the sugar to bond glass fibers positioned adjacent to the internal walls together, where the bonded glass fibers form an encapsulating shell surrounding unbound glass fibers within the preform. Hill specifically teaches applying a layer or mat composed of fibers and binder onto an initial coating composition layer positioned on the wall of the mold. (*See, e.g.*, column 3, lines 43 – 47). Hill also teaches that the binder is preferably a polyester resin for compatibility and adhesion to the first coating layer. (*See, e.g.*, column 3, lines 43 – 47). Both Knutsson and Hill are silent regarding the addition of a sugar binder to the internal walls of the preform mold prior to the addition of continuous glass strands to form a preform, or of heating the preform mold once the glass strands and binder have been supplied to the preform mold to form an encapsulating shell of bound fibers as required by claim 11.

Additionally, Applicant submits that Knutsson and Hill do not teach or suggest curing a sugar binder to bond glass fibers positioned adjacent to internal walls of a preform together where the bonded glass fibers form an encapsulating shell of bound glass fibers that surround internal unbound glass fibers within the preform as claimed in amended claim 11. Knutsson teaches blowing a powder binder with glass fibers into perforated shells that have the shape of the muffler to be filled. (*See, e.g.*, paragraphs [0005] and [0018]). In Knutsson, the binder is added to the mold or preform with the glass fibers, thereby distributing the binder throughout the fibers and the internal cavity of the preform shell. Heating the mold of Knutsson with such a distribution of binder throughout the preform mold

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would result in the glass fibers binding to each other throughout the mold. Thus, the result of the method of Knutsson is a preform having a distribution of bound fibers throughout the preform. Therefore, the glass fibers and binder of Knutsson do not form an encapsulating shell of bound fibers surrounding unbound glass fibers as required by claim 11.

With respect to Hill, a coating composition is sprayed onto a mold surface and the mold is heated to cure or partially cure the coating composition. (*See, e.g.*, column 3, lines 38 – 41 and column 4, lines 67 – 70). After this coating layer has at least partially cured, a second spray-on layer or mat formed of reinforcement fibers and binder is applied to the first coating layer. (*See, e.g.*, column 3, lines 43 – 47). Because the reinforcement fibers and binder form the mat of fibers, the binder is distributed throughout the layer or mat. Curing the binder places the mat in a rigid state. (*See, e.g.*, column 2, lines 14 – 26 and column 5, lines 14 – 16). As is known by those of skill in the art, fibers in a cured mat are bound together. As claimed in claim 11, an encapsulating shell is formed of bound glass fibers that surround internal, unbound glass fibers. In Hill, the fibers are cured (*i.e.*, bound together) to form a rigid mat of fibers. There are no loose or unbound fibers within the molded article disclosed by Hill. Therefore, it is respectfully submitted that there is no teaching or suggestion within Hill of forming a preform having an encapsulating shell of bound fibers surrounding unbound glass fibers as required by claim 11.

In addition, Applicant submits that the cited prior art references teach away from the invention claimed in amended independent claim 11. For example, Knutsson and Hill both teach the addition of glass (reinforcement) fibers to the mold with the binder and do not teach or suggest the separate addition of a binder (especially a sugar binder) prior to the addition of the glass fibers. Thus, the methods of Knutsson and Hill oppose the method of the presently claimed invention in which the sugar binder is specifically added prior to the addition of the glass fibers. Additionally, Knutsson teaches blowing apart and entangling glass strands in a perforated cavity that has the shape of the muffler to be filled. (*See, e.g.*, paragraphs [0005] and [0018]). This is the opposite of the method of claim 11 in which the continuous glass strands are texturized by separating the continuous glass strands into individual glass fibers prior to adding the texturized glass strands to the preform mold. Applicant submits that one of ordinary skill in the art would be led away from texturizing the glass strands prior to their addition to the preform mold based on the teachings of Knutsson. In addition, it is respectfully submitted that one of ordinary skill in the art would not arrive at the method claimed in claim 11 based on the teachings of Hill because Hill is silent with respect to texturizing glass strands. Therefore, it is respectfully submitted that one of skill in the art would be led away from texturizing the glass strands prior to the addition of the texturized glass strands to the preform mold and from as required by amended claim 11 based on the teachings of Knutsson and Hill.

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Additionally, Applicant respectfully submits that the combination of Knutsson and Hill would not result in the presently claimed invention. As discussed above, neither of the cited references teach or suggest the addition of sugar as a binder. In fact, Hill specifically discloses that in a preferred embodiment, a polyester resin is used as the binder. (*See, e.g.*, column 3, lines 43 – 47). Thus, it is submitted that if the teachings of Knutsson and Hill were combined, it would result in preform in which sugar is not the binder, as is required by claim 11.

Further, Applicant submits that there is no motivation for one of skill in the art to arrive at the presently claimed invention, namely, a method of forming a preform that includes placing sugar on the internal walls of a preform mold, texturizing continuous glass strands by separating the continuous glass strands into individual glass fibers prior to adding the texturized strands to the preform mold, adding the texturized strands to the preform mold, and curing the sugar to bond fibers positioned adjacent to the walls of the preform mold to form an encapsulating shell that surrounds unbound glass fibers within the preform. As discussed above, to establish a *prima facie* case of obviousness, there must be some motivation, either within the reference or in the knowledge of those of skill in the art, to modify the reference or combine the references' teachings, there must be a reasonable expectation of success, and the prior art references must meet all of the claim limitations. (*See, e.g., Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 3, August 2005, §2142). Applicant submits that one of ordinary skill in the art would not be motivated to arrive at the presently claimed process that includes feeding a sugar binder onto the walls of a preform mold prior to the addition of texturized glass strands to the mold and then curing the binder to form an encapsulating shell of bound glass fibers surrounding unbound glass fibers. Neither Knutsson nor Hill teach or suggest adding a sugar binder prior to adding texturized glass strands and then heating the preform mold to form an encapsulating shell of bound fibers that surrounds unbound fibers within the preform. In fact, Applicant submits that both Knutsson and Hill are silent regarding the addition of a sugar binder to a preform mold prior to the addition of glass fibers. In addition, there is no teaching or suggestion within either Knutsson or Hill to form an encapsulating shell of bound fibers that surrounds unbound glass fibers as is claimed in claim 11. Without some teaching or suggestion, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.

In view of the above, Applicant submits that claim 11 is not obvious over Knutsson and/or Hill and respectfully requests that this rejection be reconsidered and withdrawn.

Rejection under 35 U.S.C. §103(a)

The Examiner has rejected claims 12, 13, 15, and 16 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2001/0011780 to Knutsson ("Knutsson") in view of U.S. Patent No. 5,317,037 to Golden *et al.* ("Golden"). In particular, the Examiner admits that

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Knutsson does not teach using sugar as the binder material. In this regard, Golden is cited as allegedly teaching the use of sugar with a melting temperature in the range of 248 – 347 °F as a glass binder. The Examiner concludes that it would have been obvious to one of ordinary skill in the art to use sugar as the binder in the method of Knutsson in order to produce a biodegradable material.

Initially, Applicant submits that claim 15 has been canceled without prejudice, thereby rendering the rejection of this claim moot.

In response to this rejection, Applicant respectfully directs the Examiner's attention to the amendments made to independent claim 11 and submits that claim 11, as amended, defines a method of forming a preform that is not taught or suggested within Knutsson and Golden, either alone or in combination. With respect to the Examiner's cited references, Applicant submits that the teachings of Knutsson and Golden are discussed in detail above, and for purposes of brevity, will not be discussed in detail with respect to this rejection.

Applicant submits that neither Knutsson nor Golden teach or suggest a method of forming a preform that includes placing a binder on internal walls of a preform mold prior to the addition of continuous glass strands, texturizing the continuous glass strands by separating the continuous glass strands into individual glass fibers prior to adding the texturized glass strands to the preform mold, adding the continuous glass strands to the preform mold, and curing the binder to bond glass fibers positioned adjacent to the internal walls, where the bonded glass fibers form an encapsulating shell that surrounds unbound glass fibers within the preform. Applicant submits that, unlike the method claimed in amended claim 11, Knutsson specifically teaches that the glass strands are blown apart and entangled in a cavity formed of perforated shells having the shape of the muffler to be filled. (*See, e.g.,* paragraphs [0005] and [0018]). As recited in amended claim 11, the continuous glass strands are texturized into individual glass fibers prior to feeding the texturized glass strands into a preform mold. Thus, the glass strands of the presently claimed invention are not texturized in the preform mold as taught by Knutsson. With respect to Golden, Applicant submits that Golden is silent regarding any teaching or suggestion of texturizing glass strands into individual glass fibers. Golden simply teaches a moldable composition that includes mixing reinforcement fibers and binders. There is no disclosure of any kind of texturization of the glass strands within Golden.

Additionally, Applicant submits that Knutsson and Golden teach away from the invention claimed in amended independent claim 11. For example, Knutsson teaches blowing apart and entangling glass strands in a perforated cavity having the shape of the muffler to be filled. (*See, e.g.,* paragraphs [0005] and [0018]). This is the opposite of the method of claim 11 in which the continuous glass strands are texturized into individual glass fibers prior to feeding the texturized glass strands into a preform mold. Applicant submits that one of ordinary skill in the art would be led away from texturizing the continuous glass strands prior to their addition to the preform mold based on the

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teachings of Knutsson. It is respectfully submitted that one of ordinary skill in the art would not arrive at the method claimed in claim 11 based on the teachings of Golden because Golden is silent with respect to texturizing glass strands. In view of the above, Applicant also respectfully submits that the combination of the teachings of Knutsson and Golden would not result in the inventive method of claim 11.

Further, Applicant submits that there is no motivation for one of skill in the art to arrive at the presently claimed invention based on the disclosures of Knutsson and Golden. In order to establish a *prima facie* case of obviousness, there must be some motivation, either within the reference or in the knowledge of those of skill in the art, to modify the reference or combine the references' teachings, there must be a reasonable expectation of success, and the prior art references must meet all of the claim limitations. (See, e.g., *Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 3, August 2005, §2142). It is respectfully submitted that one ordinarily skilled in the art would not be motivated to arrive at the presently claimed process for forming a preform that includes texturizing continuous glass strands by separating the continuous glass strands into individual glass fibers prior to feeding the texturized glass strands into a preform mold. As discussed above, neither Knutsson nor Golden teach or suggest texturizing continuous glass strands into glass fibers prior to feeding glass strands into a preform mold. Without some teaching or suggestion, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.

In view of the above, Applicant respectfully submits that amended claim 11 is patentably distinguishable over Knutsson and Golden, either alone or in combination. Because claims 2, 5 – 14, and 16 are dependent upon independent claim 11, which, as discussed above, is not taught within the Examiner's cited references, either alone or in combination, claims 2, 5 – 14, and 16 are submitted to be non-obvious and patentable. Accordingly, Applicant respectfully requests reconsideration and withdrawal of this rejection.

Rejection under 35 U.S.C. §103(a)

The Examiner has rejected claim 14 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2001/0011780 to Knutsson ("Knutsson") in view of U.S. Patent No. 3,286,004 to Hill *et al.* ("Hill"), and further in view of U.S. Patent No. 5,317,037 to Golden *et al.* ("Golden"), and further in view of U.S. Patent No. 6,319,444 to Kirk *et al.* ("Kirk"). The Examiner admits that Knutsson does not teach heating the preform mold prior to placing the binder material on the internal walls of a mold. It is asserted that Kirk teaches preheating a mold prior to a molding process. The Examiner concludes that it would have been obvious to one of skill in the art to use Kirk's teachings in the method of Knutsson in view of Golden to reduce the wait time required to heat up the mold.

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In response to this rejection, Applicant respectfully directs the Examiner's attention to the amendments made to independent claim 11 and submits that claim 11 defines a method of forming a preform that is not taught or suggested within Knutsson, Hill, Golden, or Kirk, either alone or in any combination. With respect to Knutsson, Hill, and Golden, Applicant submits that the teachings of these references are discussed in detail above, and for purposes of brevity, will not be discussed in detail with respect to this rejection. Kirk teaches a method of forming an insulting material that includes advancing a multifilament strand of continuous filaments having a binder thereon into a mold, and then molding the continuous filament wool with the binder to form an insulation material. (*See, e.g.*, column 3, lines 27 – 34, column 4, lines 9 – 16, and column 6, lines 50 – 53). In particular, Kirk teaches advancing a multifilament strand of continuous filaments through a nozzle to separate the filaments from each other and form a continuous filament wool. (*See, e.g.*, Abstract and column 3, lines 27 – 31, and column 4, lines 9 – 13). The continuous filament wool is then placed into a mold and a binder is added. (*See, e.g.*, column 4, lines 13 – 15). Once the binder is added, the continuous filament wool is molded to form an insulation layer. (*See, e.g.*, column 4, lines 13 – 15).

Applicant submits that Knutsson, Hill, Golden, and Kirk do not teach or suggest the combination of steps of the method of the present invention which includes placing a binder on internal walls of a preform mold prior to the addition of continuous glass strands, texturizing the continuous glass strands by separating the continuous glass strands into individual glass fibers prior to adding the texturized glass strands to the preform mold, adding the texturized glass strands to the preform mold, and curing the binder to bond glass fibers positioned adjacent to the internal walls, where the bonded glass fibers form an encapsulating shell surrounding internal, unbound glass fibers positioned within the preform. In particular, Applicant submits that none of the cited references teach or suggest curing a sugar binder to bond glass fibers positioned adjacent to internal walls of a preform together where the bonded glass fibers form an encapsulating shell of bound glass fibers that surround internal, unbound glass fibers within the preform as claimed in amended claim 11. Knutsson teaches blowing a powder binder together with glass fibers into perforated shells that have the shape of the muffler to be filled. (*See, e.g.*, paragraphs [0005] and [0018]). Kirk similarly teaches the addition of a binder and continuous filament wool to a mold or, alternatively, the addition of the binder after the addition of continuous filament wool to the mold. (*See, e.g.*, column 8, lines 11 – 15). In Golden, the composition is formed by mixing fibers and binder together using a water solution. (*See, e.g.*, column 3, lines 54 – 55). The mixture may then be poured or injected into molds and molded into useful articles. (*See, e.g.*, column 3, lines 6 – 9 and column 4, lines 21 – 25).

In each of Knutsson, Kirk, and Golden, the binder is added to the mold or preform with the glass fibers (or, in the case of Kirk, the binder may be applied with the glass fibers or after the addition of the glass fibers). Thus, the binder is distributed throughout the fibers and the internal

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cavity of the mold or preform shell. Heating the molds of Knutsson, Kirk, or Golden with such a distribution of binder throughout the mold would result in the glass fibers bonding to each other throughout the mold. The result of the methods of Knutsson, Kirk, and Golden is a preform or article with a distribution of bound fibers throughout the preform or article. Therefore, the glass fibers and binder of Knutsson, Kirk, and Golden do not form an encapsulating shell of bound fibers surrounding unbound glass fibers as required by claim 11.

With respect to Hill, a coating composition containing a polyester resin, a suitable catalyst, and a pigment is sprayed onto a mold surface. (*See, e.g.*, column 3, lines 38 – 41). The mold is heated to cure or partially cure the first coating composition. (*See, e.g.*, column 4, lines 67 – 70). After this first coating layer has at least partially cured, a second spray-on layer formed of reinforcement fibers and binder is applied to the first coating layer. (*See, e.g.*, column 3, lines 43 – 47). The reinforcement fibers form a layer or mat of fibers. (*See, e.g.*, column 3, lines 43 – 45). Because the reinforcement fibers and binder are added together to form a mat of fibers, the binder is distributed throughout the layer or mat. Curing the binder places the mat in a rigid state. (*See, e.g.*, column 2, lines 14 – 26 and column 5, lines 14 – 16). As is known by those of skill in the art, fibers in a cured mat are bound together. As claimed in claim 11, an encapsulating shell is formed of bound glass fibers surrounding internal, unbound glass fibers. In Hill, the fibers are cured (*i.e.*, bound together) to form a rigid mat of fibers. There are no unbound fibers in the article of Hill. Therefore, it is respectfully submitted that there is no teaching or suggestion within Hill of forming a preform that has an encapsulating shell of bound fibers that surrounds unbound glass fibers as required by claim 11. Additionally, Applicant submits that, in view of the above, the combination of the teachings of Knutsson, Hill, Golden, and Kirk would not result in the invention claimed in claim 11.

In addition, Applicant respectfully submits that there is no motivation for one of skill in the art to arrive at the presently claimed invention, namely, a method of forming a preform that includes placing a sugar on the internal walls of a preform mold, texturizing continuous glass strands by separating the continuous glass strands into individual glass fibers prior to adding the texturized glass strands to the preform mold, adding continuous strands to the mold, and curing the sugar to bond fibers adjacent to the walls of the preform mold to form an encapsulating shell of bonded glass fibers that surrounds internal, unbound fibers. As discussed previously, to establish a *prima facie* case of obviousness, there must be some motivation, either within the reference or in the knowledge of those of skill in the art, to modify the reference or combine the references' teachings, there must be a reasonable expectation of success, and the prior art references must meet all of the claim limitations. (*See, e.g., Manual of Patent Examining Procedure*, Patent Publishing, LLC, Eighth Ed., Rev. 3, August 2005, §2142). Applicant submits that one of ordinary skill in the art would not be motivated to arrive at the presently claimed process that includes feeding a sugar onto the walls of a preform

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mold prior to the addition of continuous glass strands and then curing the sugar to form an encapsulating shell of bonded glass fibers. As discussed above, none of Knutsson, Hill, Golden, or Kirk teach or suggest forming an encapsulating shell of bound fibers that surrounds internal, unbound glass fibers. In addition, Applicant submits that Knutsson, Hill, Golden, and Kirk do not teach or suggest curing a sugar binder to form an encapsulating shell of bound fibers surrounding unbound fibers within the preform. Without some teaching or suggestion, there can be no motivation, and without motivation, there can be no *prima facie* case of obviousness.

In view of the above, Applicant submits that claim 11 is not obvious over Knutsson, Hill, Golden, and/or Kirk. Because claim 14 is dependent upon independent claim 11, which, as discussed above, is not taught within the Examiner's cited references, either alone or in combination, claim 14 is submitted to be non-obvious and patentable. Accordingly, Applicant respectfully requests that this rejection be reconsidered and withdrawn.

Conclusion


In light of the above, Applicant believes that this application is now in condition for allowance and therefore requests favorable consideration.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

If necessary, the Commissioner is hereby authorized to charge payment or credit any overpayment to Deposit Account No. 50-0568 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

Date: 10/16/06


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